

**ABSTRACT OF THE DISCLOSURE**

Disclosed is a general model and method for computing performance bounds in multi-hop wireless networks. Rather than focusing on computing asymptotic performance bounds under assumptions of homogeneity or randomness in the network topology and/or workload, the present invention accommodates any given network, technology, interference model, routing paradigm, and workload. Using a conflict graph to formally characterize the impact of wireless interference on the performance of multi-hop wireless networks, methods for computing upper and lower bounds on the capacity of a given wireless network are detailed. Besides computing network capacity, the model and method disclosed can also enable or benefit other applications including maximizing fairness and minimizing maximum link utilization.